

## PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)RECEIVED  
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See Notification of Transmittal of International  
Preliminary Examination Report (Form PCT/PEA/416)

Applicant's or agent's file reference PU5028WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)
International application No. PCT/US 03/35808	International filing date (day/month/year) 12.11.2003	Priority date (day/month/year) 22.11.2002
International Patent Classification (IPC) or both national classification and IPC C07D261/08		
Applicant SMITHKLINE BEECHAM CORPORATION et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.
3. This report contains indications relating to the following items:
  - I  Basis of the opinion
  - II  Priority
  - III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV  Lack of unity of invention
  - V  Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI  Certain documents cited
  - VII  Certain defects in the international application
  - VIII  Certain observations on the international application

Date of submission of the demand 21.05.2004	Date of completion of this report 02.09.2004
Name and mailing address of the International preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer vanVoorsttotVoorst,M Telephone No. +49 89 2399-8280



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/US 03/35808

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-111 as originally filed

**Claims, Numbers**

1-40 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US 03/35808

## III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:
  - the entire international application,
  - claims Nos. 15-21
    - because:
  - the said international application, or the said claims Nos. 15-21 relate to the following subject matter which does not require an international preliminary examination (specify):  
**see separate sheet**
  - the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
  - the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
  - no international search report has been established for the said claims Nos.
2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:
  - the written form has not been furnished or does not comply with the Standard.
  - the computer readable form has not been furnished or does not comply with the Standard.

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes: Claims	1-40
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-40
Industrial applicability (IA)	Yes: Claims	1-14,22-40
	No: Claims	

### 2. Citations and explanations

**see separate sheet**

**AD SECTION III:**

1. For the assessment of the present claims 15-21 on the question whether they are industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment. Claims 15-21 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims (Article 34(4)(a)(I) PCT).

**AD SECTION V:**

1. The priority documents pertaining to the present application were not available at the time of establishing this International Preliminary Examination Report. Hence, it is based on the assumption that all claims enjoy priority rights from the filing date of the priority document. If it later turns out that this is not correct, the document WO 03/015771 A (GIEGRICH KRISTINA ;BAUER ULRIKE (DE); DEUSCHLE ULRICH (DE); KOGL M) 27 February 2003 (2003-02-27), filing date 13.08.02, priority dates 13.08.01 and 01.07.02, cited in the International Search Report could become relevant to assess whether claims 1-40 satisfy the criteria set forth in Article 33(1) PCT.
2. Having regard to the prior art cited in the International Search Report and in the application WO 00/37077 A (GLAXO GROUP LTD ;BLANCHARD STEVEN GERARD (US); PARKS DEREK J (US);) 29 June 2000 (2000-06-29) (=D1), the subject-matter claimed differs from the therein disclosed compounds of formulae (I) and (II) on account of the presence of the Z group. Accordingly, the subject-matter of claims 1-40 appears to meet the requirements of Article 33(2) PCT.
3. Closest prior art comprises the above mentioned compounds of D1, which possess similar pharmacological activities as the present compounds. The problem to be solved was to provide further compounds useful as agonists for Farnesoid X receptors (FXR).

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US 03/35808

Although the Applicant has shown this activity on pages 107-110 of the description it is considered that, having regard to the teaching of D1, wherein structurally closely related compounds having a similar activity are disclosed, the skilled person would have expected such an activity from the present compounds.

Whether or not the structural modifications of the state of the art are associated with an improvement at all is a fundamental aspect of inventive step. Unless evidence refutes the assumption that the modifications made are not unexpectedly associated with a significant improvement in the property relevant to the solution of the stated problem, the presumption prevails that the compounds represent only predictable effects and are therefore obvious. The solution of the problem of merely providing further compounds FXR agonistic activities does not involve an inventive step.

Therefore, the subject-matter according to claims 1-40 does not appear to satisfy Article 33(3) PCT.

4. No objections with regard to Article 33(4) PCT arise for claims 1-14 and 22-40, however, see Section III above.